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following groups; Equisetales (an Equisetites), Filicales (a species each in Marattiaceae, Osmundaceae?, Schizaeaceae, and Cyatheaceae?), Bennettitales (a Williamsonia), Ginkgoales (a Baiera), and Coniferales (a Pagiophyllum); in addition to these, there are four unassigned cycadophytes and two species of Podozamites. The collection from Turkestan includes approximately the same range of forms, adding a species of Dipteridinae and eight species of unassigned Filicales, but showing no Marattiaceae or Schizaeaceae; representing Ginkgoales by two species of Ginkgo; and adding three Coniferales. In conclusion, the relations of these floras to those of other regions are shown by a table; and also the wide distribution of some of the species. Among the striking facts are the existence of so many species for a considerable time during the Mesozoic; the general uniformity in the composition of both the Rhaetic and Jurassic floras in different parts of the world; and the remarkable paucity of cycadean remains in the Turkestan beds.—J. M. C.

Light perception.—ALBRECHT has examined a large number of the endemic plants of northern Germany for the organs of light perception (lenticular epidermis, ocelli, etc.) to which HABERLANDT attributes the capacity of distinguishing differences of light intensity. He finds⁷ the organs very rare, and when they are present, nearly as common on the under as on the upper surface of the leaf, though it is clear that to the illumination of the upper surface alone is due the exact placing of the leaf in the fixed light position. No difference appeared in the adaptation of sun and shade leaves to the perception of light. He adduces again the experiments made by coating leaves with water, gelatin, and oil, as evidence against HABERLANDT's theory. After the reading of the paper, HABERLANDT spoke of the faulty methods in all the latter experiments, describing a mode of coating a part of the leaf with water and leaving the other part dry. On stimulating the two parts with light from different directions, the dry part was always the controlling one, even though the light was much weaker. HABERLANDT considers these experiments (to be detailed later) quite decisive. It may be pointed out, however, that other factors than light are here operative—and that the weight of evidence is clearly against HABERLANDT.—C. R. B.

Invertase of the date.—VINSON has studied further⁸ the invertase of green and ripe dates, in an endeavor to discover the reason for its inextractability from the green fruit. He finds that the tannin present does not make it insoluble, nor can it be extracted from ground pulp, so that impermeability of the cell membranes is excluded. He proposes the theory "that green date invertase and possibly other endoenzymes are held in an insoluble combination by some constituent of the protoplasm. In some cases this combination may be broken

⁷ ALBRECHT, G., Ueber die Perception der Lichtrichtung in den Laubblättern. Ber. Deutsch. Bot. Gesells. **26a**:182-191. 1908.

⁸ VINSON, A. E., The endo- and ektoinvertase of the date. Jour. Am. Chem. Soc. **30**:1005-1020. 1908. Cf. earlier paper, BOT. GAZETTE **43**:393. 1907.